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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,548	03/07/2006	Maria Jose Fernandez	4258-116	9386
23448 7590 06/10/2009 INTELLECTUAL PROPERTY / TECHNOLOGY LAW PO BOX 14329 RESEARCH TRIANGLE PARK, NC 27709				
EXAMINER WINTERBERG, NISSA M				
ART UNIT 1618		PAPER NUMBER		
MAIL DATE 06/10/2009		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/561,548

**Applicant(s)**

FERNANDEZ ET AL.

**Examiner**

Nissa M. Westerberg

**Art Unit**

1618

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 31 is/are pending in the application.
- 4a) Of the above claim(s) 1 - 15, 21, 23 - 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16 - 20, 22, 29 - 31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 12, 2009 has been entered.

### ***Double Patenting***

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29

USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 16 – 20, 22 and 31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 – 12 of copending Application No. 12/301835. The claims of the instant application recite nanoparticles, with diameters of less than 1 micron, comprised of a hyaluronic acid salt such as sodium, a cationic polymer such as chitosan, a polyanionic salt such as sodium triphosphate and an active ingredient. The claims of US'835 recite nanoparticles with a size of less than 1 micron of hyaluronan (hyaluronic acid) or a salt thereof, such as the sodium salt (claim 6); chitosan; a reticulating agent such as sodium triphosphate (claims 7 and 8); and a biologically active molecules (claims 10 - 11). Thus, the claims of the

two applications recite nanoparticles comprised of the same ingredients, namely sodium hyaluronate, chitosan, sodium triphosphate and an active agent.

This is a provisional obviousness-type double patenting rejection.

### ***Specification***

4. The disclosure is objected to because of the following informalities: there is contradictory information present in the specification as to size of the particles produced. On p 10, ln 25 and p 14, ln 3 and 5, the diameter of these particles is identified as being less than 1 m. This contradicts the information presented on p 6 in which nanospheres or nanoparticles with a size of less than 1 micron are described (ln 10 – 13).

In examples 4 and 5 (p 18, ln 16 – p 19, ln 15), no indication is given as to what particular symbol used to represent each particular ratio of ingredients in the various samples in the various figures.

Appropriate correction is required. Applicants are cautioned that amendments to the specification cannot introduce new matter into the application.

### ***Claim Rejections - 35 USC § 112 – 2<sup>nd</sup> Paragraph***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 16 – 20, 22 and 29 – 31 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a step such as the formation of an emulsion, dropwise addition of one solution to the other solution or an equivalent step that results in the formation of nanoparticles. The material produced by only the recited steps in the instant claim would not result in particles whose diameter is than 1  $\mu\text{m}$  but rather a bulk hydrogel material.

7. Claims 29 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Each claim recites the limitation "hyaluronic acid" in line 1. There is insufficient antecedent basis for this limitation in the claim as the previous claim recites "hyaluronic acid salt".

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 16 – 20, 22 and 29 – 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prokop (US 2003/0170313) in view of Calias et al. (US 2003/0087877). This rejection is MAINTAINED for the reasons of record set forth in the Office Action mailed January 6, 2009 and those set forth below.

Applicant traverses this rejection on the grounds that Prokop in view of Calias et al. fails to disclose or provide any derivative basis for nanoparticles in which the components are devoid of covalent bonds, as recited in the amended claims. The

nanoparticles of the claimed invention achieve a striking stability in relation to the compositions of Prokop, which exhibit stability for only 3 – 5 days unless covalent-cross linking or near-zero temperature storage conditions are employed.

These arguments are not found persuasive. In regards to the new claims, Prokop discloses the lyophilization of the prepared nanoparticles (¶¶ [0102] - [0103]). In regards to the specific ratio of hyaluronic acid salt, polycationic and polyanionic polymers, the amount of hyaluronic acid salt, polycationic and polyanionic polymers will affect the size and other physical properties of the resulting nanoparticles. Prokop teaches that the polyanionic polymer to polycationic polymer are mixed in a ratio which can vary between 1:1 and 1:4 (¶ [0061]), values which are encompassed by the range claimed by Applicant. The inorganic salt (the polyanionic salt of the instant claims) can be present in the same amounts as the polycationic or polyanionic polymer component for the particular layer (¶¶ [062] – [0063]). The amount of a specific ingredient in a composition is clearly a result effective parameter that a person of ordinary skill in the art would routinely optimize. Optimization of parameters is a routine practice that would be obvious for a person of ordinary skill in the art to employ and reasonably would expect success. It would have been customary for an artisan of ordinary skill to determine the optimal amount of each ingredient to add in order to best achieve the desired results.

The nanoparticles disclosed by Prokop need not be covalently crosslinked. See, for example, the claims and examples 3 - 5 (¶¶ [0081] - [0086]). No covalent cross-linkers are present in these nanoparticles. The salts present in the layers (such as



calcium chloride, potassium chloride or sodium tripolyphosphate (3PP)) ionically cross-links the various components, as evidenced by Alonso Fernandez et al. (¶ [0009], US 2001/0051189). The linkages between the various components in the composition does not need to be covalent in order for stable nanoparticles to be formed.

In regards to the superior properties of the particles claims, Applicant has not presented evidence commensurate in scope with the instant claims and a comparison with the closest cited prior art. The data presented in figure 4 and 5 are for specific ratios of nanoparticles comprises of sodium hyaluronate, chitosan sulfate and TPP, and do not provide support for entire breadth of nanoparticles claimed by Applicant. Arguments without factual support are mere allegations and are not found to be persuasive.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nissa M. Westerberg whose telephone number is (571)270-3532. The examiner can normally be reached on M - F, 8:00 a.m. - 4 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Hartley can be reached on (571) 272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jake M. Vu/  
Primary Examiner, Art Unit 1618

NMW